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VOL. XVI AIR CORPS NEWS NO. 10.

Information Division
Air Corps

August 27, 1932

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The chief purpose of this publication is to distribute information on aeronautics to the flying personnel in the Regular Army, Reserve Corps, National Guard, and others connected with aviation.

Publishers are authorized to reprint material appearing herein, except that portion of the News Letter beginning with Notes from the Fields.

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THE MISSION OF BOMBARDMENT

On a recent address through Station KFXM, San Bernardino, Calif., 1st Lt. Charles H. Howard, 11th Bombardment Squadron, March Field, Calif., gave a very interesting discussion on the subject of "The Mission of Bombardment." Lieut. Howard's address was as follows:

Textbooks give as a definition the quite obvious statement that "Bombardment aviation is that component of an air force, the primary function of which is to destroy objectives on land and sea by means of projectiles dropped from airplanes." Unfortunately, the problem so simply stated is not so simple of accomplishment, involving as it does, the design and production of the airplane, the training of the pilot and bomber, the development and production of suitable bombs and of sighting apparatus that will insure accuracy in dropping.

The story of civilization, through every race, is filled with symbols, drawings and writings indicative of man's age old ambition to fly, and we may be sure that along with any conception of flight came also the idea of dropping missles on the heads of the enemy.

The earliest record of aerial warfare of this type is found in the Mahabarata in India, dated about 600 B.C., from which it is quoted that the enemies of Krishna "built an aerial chariot with sides of iron and clad with wings. The chariot was driven through the sky till it stood over Dwarkha where Krishna's followers dwelt, and from there it hurled down upon the city missles that destroyed everything on which they fell." But even though the written record of aerial bombardment has its beginning in ancient mythology, we must drop down some two thousand five hundred years to find the first actual use of the airplane in the role of bomber.

From all accounts this occurred in 1911, during the Italian campaign in Tripoli. Apparently, the effects were largely moral, the material damage being slight. The next use of the aerial bomb was by the Spanish forces in the Moroccan campaign, where it came as a cooperative effort with the ground troops.

On August 30th, 1914, with the enemy almost at the gates of Paris, a single German airplane appeared in the evening sky and loosed on the city a shower of small bombs, accompanied by a note saying - "People of Paris! Surrender! The Germans are at your gates! Tomorrow you will be ours!" The comparative damage done by note and bombs is not recorded. It is from this raid that aerial bombardment of the World War may be said to date.

The Germans early recognized the value of long distance bombing and proceeded with the organization of special bombardment units designed to attack the manufacturing cities along the English coast. However, due to limitations of the aircraft, it was not until the 21st of December that they succeeded in reaching their objective and dropped several bombs near Dover.

Aerial activity on the front constantly increased and all the belligerents kept up continuous raids on the front lines and on munition dumps and railroad yards immediately to the rear. From the scattering efforts of the first part of the war, in which one or half dozen airplanes participated, bombardment aviation, at the time of the Armistice, had developed into a major arm in which literally hundreds of airplanes carrying tons of bombs took their part.

America's effort at bombardment began with a raid by the 96th Squadron the 12th of June, 1917. They were equipped with the French Breguet Bombers, American machines not yet having appeared on the front. It was after the St. Mihiel offensive that our First Bombardment Group was organized, and among the four squadrons forming it we find the 11th Squadron, now part of the 7th Bombardment Group and the First Bombardment Wing at March Field.

During the first years of the war, many and varied types of planes were employed as bombers. The same machine used in observation work was found in bombard-

ment squadrons. The bomb load was necessarily limited to some hundreds of pounds; the carrying and releasing mechanisms were crude, the bombs in some cases having been heaved overboard. Sighting devices had not been developed, and accuracy was largely a combination of the pilot's skill, luck and experience. The bombs were crude affairs, being in the earlier stages largely supplied from reworked artillery shells.

The year 1917 is marked by the appearance of the modern two-engined bomber of which the Handley Page was the British version and the Gotha that of the Germans. Both these machines were capable of carrying nearly a ton of bombs but, due to their huge size and slow speed, were used almost entirely at night. As the war progressed, the value of bombardment aviation became increasingly apparent to the Allies to the extent that the British planned an increase in their air force from 86 squadrons, with ten for long distance bombardment, to 179 squadrons, of which 66 were to be for long distance bombardment. The plans of our own forces contemplated the formation of 101 bombing squadrons with 1600 planes by July of 1919.

It is out of this crucible of the World War that modern bombardment aviation is molded. We say molded advisedly, for with the realization that practical aviation is scarcely more than a decade old it would be foolish, indeed, to crystallize one's ideas in the face of ever changing improvements. However, the experience of the years from 1914 to 1918 has given us some very definite ideas of what is desired in a bombardment plane. We have, for convenience, divided our requirements into two general types called light and heavy bombers. The line of demarcation has been arbitrarily drawn at a load of eleven hundred pounds for the light, and two thousand pounds for the heavy bomber. It has been generally assumed that the light bomber would be a much faster plane and able to carry on its mission in daylight. Recent developments give rise to the belief that we may have our heavy bombers equalling the speed of the other type and both approaching the speed of the present Pursuit plane. The study of the requirements of any airplane soon convinces one that each design is a compromise among a number of desirable features. Some of the essential elements of a good Bomber are: bomb carrying capacity; speed; radius of action and range; ceiling or operating altitude and rate of climb; defensive power; landing speed; maneuverability; field of view; ease of maintenance and reliability. A few of the more important qualities will be taken up briefly.

By bomb carrying capacity we mean not only the ability to lift the necessary weight but also such structural arrangement as will allow us to carry this weight either as one large bomb or several smaller ones. In the case of the light bomber, we should be able to distribute the load as one 1100, two 600 or four 300-pound bombs. The need for this ability to carry various sized bombs arises from the variety of targets which it may be necessary to attack. It is useless to drop ten 100-pound bombs on a target that we know requires a direct hit from an 1100-pound bomb. It is equally useless to drop 1100 pounds in one lump when greater damage can be done by a series of smaller explosions over a greater area.

Closely related to bomb carrying capacity is the radius of action and range. Modern conception of bombardment anticipates actions to a depth of some 300 to 400 miles in enemy territory or, in the case of the defense of our shores, an equal distance out to sea. It is unnecessary to point out that a plane making such a flight must be able to return to its base without landing. This imposes a severe penalty on load carrying due to the huge amount of fuel required.

Speed! In this one word we have the essence of aircraft employment, whether commercial or military. Heretofore it has been necessary to make considerable sacrifice in this vital requirement in favor of carrying capacity. Two elements now dictate that more consideration be given this feature. They are, the high speeds developed by the modern Pursuit ship and the increasing accuracy of anti-aircraft fire. With fighting planes making speeds up to 250 miles per hour, it is obvious that Bombardment at 100-miles per hour cannot hope to perform its missions without tremendous losses. The increased problem for anti-aircraft resulting from high airplane speeds can be readily appreciated when it is known that a plane flying 100 miles per hour at an altitude of 15,000 feet travels some 1800 feet forward while the shell is in flight, while at 160 miles per hour it travels nearly 3,000 feet in the same time, not only making the sighting and computing of data more difficult but giving the plane that much more room in which to maneuver.

Under defensive power we find what is to the speaker one of the most fundamental requirements of a good Bombing plane. By defensive power we mean the pro-

vision of sufficient machine guns to withstand the attacks of pursuit airplanes. However, in considering this question we must think, not of a single airplane but rather of from nine to thirty-six planes flying in formation. One of the greatest lessons of the World War was the effective mutual support achieved between Bombers when flown in close formation.

Another important attribute of the ship must be reliability. Not only from the expectancy of having it in service every day and able to complete each mission without mechanical or structural failure but from the standpoint of moral effect on the crew, who feel that no matter how tough the fight or dangerous the mission their ship will do its part. Absolute confidence in the airplane cannot be overestimated as a morale contributing factor. With this in mind, the Air Corps insists to the utmost on the best in materials and design in their equipment. It is largely through the rigid Government requirements that civil aviation has developed its present degree of reliability and safety.

Representative of the present Bomber equipment of the Air Corps are the two types now in use at March Field. The Keystone Bomber, with which the 9th and 31st Squadrons are equipped, is of the biplane type, with a wing spread of 75 feet, a weight empty of 8,000 pounds, two air-cooled motors of 575 horsepower each, a crew of five, a bomb load of 2,000 pounds and a top speed of 120 miles per hour. The 11th Squadron is equipped with the Curtiss Condor, also a biplane type, with a wing spread of 90 feet, a weight empty of 9,000 pounds, two water-cooled V-type motors of 625 horsepower, a crew of five, a maximum bomb load of 4,000 pounds and a top speed of 143 miles per hour.

Several manufacturers have under development Bombing planes embodying to the fullest degree the desirable features previously enumerated. These newer developments show a trend away from the familiar biplane to the monoplane type. One such ship, of which a sample is undergoing test, has a single thick wing into which two 600-horsepower motors are carefully streamlined. The fuselage is small and so round and long as to resemble a cigar. The bombs are carried underneath the wings and not inside the fuselage as in present types. This ship, with its unofficial speed of over 180 miles per hour, marks a definite step forward for this type. Another prominent manufacturer has developed a light Bomber known as a "gull wing" type, so called because when viewed from the front the wings drop into the fuselage as do those of a sea gull. This machine is powered with two 600-horsepower V-type liquid-cooled motors and does something like 200 miles per hour. These two machines are indicative of present day Bombardment types and mark a distinct advance in design and performance.

High performance airplanes are just one of the problems of Bombardment aviation. To many people a bomb is just so many pounds of dynamite, but to the initiated it resolves itself into a complicated mechanism of design, production and operation into which have gone years of research. As noted before, demolition bombs have been more or less standardized, according to weight, into a series which include 100, 300, 600, 1100 and 2,000-pound bombs. There are numerous other specialized types, including those used by Pursuit and Attack squadrons. These bombs are not to be thought of as just a container for the explosive. They must be built strong enough to penetrate heavy concrete and earth gun emplacements and certain types of protective armor.

This matter of penetration brings up the problem of designing a fuze that will not explode the bomb on impact but will give an appreciable delay and penetration before going off. The idea of dropping 2,000 pounds of TNT from a height of three miles and having it so educated as not to go off instantly is one to which the Ordnance Department is giving much thought. In order to insure that a bomb once launched will proceed along a predetermined path, it has been necessary to provide them with fins somewhat after the manner of a Zeppelin. So equipped, the modern bomb has a remarkable degree of accuracy in its fall.

But this accuracy goes for naught unless we have some means of determining from what point the bomb must be released to hit the target. The fact that the plane at the instant of dropping will be going over 100 miles per hour makes quick and accurate work necessary. An airplane, unlike a dirigible, cannot hover over the target. On the contrary, it will be making its maximum speed. The bomb, then, will leave the ship in a horizontal position, with the same forward velocity as the plane. In falling, the nose gradually drops and the bomb becomes more nearly vertical as it falls. Were it not for air resistance, the bomb would, if the airplane maintained its course, strike directly underneath it. Experiment has shown that a bomb released at a speed of 180 miles per hour from an altitude of 15,000 feet requires 32 seconds to reach the earth. In that time it will have

traveled forward some eight thousand feet, or about a mile and a half. When it is remembered that there is only one point on our course from which, under these conditions, this bomb will travel to the target, the problem confronting both the sight designer and the bomber is appreciated.

That progress has been made in the design of sights is indicated by the fact that the present instrument is five times as accurate as the best sight used during the war. Results, however, still depend on the training, skill and experience of the bomber. It is with the idea of reducing the personal factor that development is being continued. The ultimate achievement along this line is a sight with a small telescope which, when kept on the target by the bomber, signals the pilot for changes in direction and at the proper instant automatically releases the bomb.

Having thus far equipped ourselves with the mechanics of Bombardment aviation, we may turn to a consideration of the targets against which such equipment may be used. Contrary to general belief, heavy Bombardment rarely concerns itself with operations primarily against personnel. Their mission is the destruction of munitions factories, air depots, docks and shipyards, heavy fortifications, minitions dumps, railroad centers, aqueducts and reservoirs and naval vessels of all types.

This matter of targets brings closely to home the subject of the defense of Southern California. Surrounded as it is by a ring of mountains, with few passes, and with its shores offering possible landing places for enemy troops, it appears as a most vulnerable spot, particularly to an attack launched from the sea. The damage or destruction of the Los Angeles water system, the harbor at San Pedro, the huge stores of oil and gasoline, or the highways and railroads through the mountain passes would be disastrous. It is not hard to imagine the havoc and confusion resulting from the bombardment of a rail center such as our own here in San Bernardino.

But in picturing a defense from such a possibility, we must not lose sight of one factor common to all air defense, a factor which, ultimately, will bring all thought of the protection of our country to the realization that the air force must be our first line of defense, ready at a moment's notice to take the field against any threatened attack, whether on the Atlantic or Pacific, and destroy or hold off any foe while the mobilization of our military resources is completed. This factor is mobility, the basic attribute of this arm which makes it possible to move a thousand miles over night and immediately go into action.

And in conclusion I would leave with you this thought; that while the nations of the world in conference make much of the abolition of certain weapons of war, these same nations have under development even greater air fleets than any contemplated by our own country. And as for ourselves, committed as we are to a policy of defensive warfare only, we should remember the oft quoted axiom that "the best defense is a strong offense" and that Bombardment lends itself most powerfully to that role.

And as you see these aircraft in maneuvers over the cities of Southern California, remember that they are your first line of defense, a part of our national insurance against hostile aggression and for peace.

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EXCELLENT RECORD IN GUNNERY AND BOMBING IN HAWAII

A large number of officers in the Hawaiian Department qualified as Expert Aerial Gunners and Expert Aerial Bombers during the 1932 training period. Practically every officer exceeded his score of last season. First Lieut. Otto P. Weyland made the highest score in aerial gunnery - a record of 969. There were also ten other officers who qualified with scores of 790 to 929. This included firing on a sleeve target towed by another plane, firing at ground targets from a dive and dive bombing.

The highest score in the Observer's Course in aerial gunnery was made by 1st Lieut. Charles G. Brenneman - a total of 1288. In the Observer's Course, both towed aerial and ground targets are fired on the pivot-mounted guns. Thirty-six other officers qualified in this event, with scores ranging from 716 to 1194.

Second Lieut. Lloyd H. Tull made the highest score in aerial bombing with a mark of 1870.2. In this event the wreck of an old ship lying on the reef outside the mouth of Pearl Harbor was used as a target. Sixteen other officers qualified in this course, with scores ranging from 1562 to 1864.

LANGLEY FIELD BOMBERS CHRISTENED

THE 49th Bombardment Squadron of Langley Field, Va., returned to its proper station August 12th, following an impressive christening of one of the huge Keystone Bombers at Salisbury, Md., on the afternoon of the preceding day. Captain Eugene L. Eubanks, Commanding Officer of the 49th Squadron, led the formation of nine ships, which were manned by 16 officers and 24 enlisted mechanics, and which left Langley Field for Salisbury on the morning of August 11th. During the recent two weeks' maneuvers of the Squadron, when it was encamped at the Hebron Airdrome, the City of Salisbury has requested informally that plans be laid to christen one of the Bombers, and August 11th was designated as the date.

An avigation and tactical problem was assigned to the 49th, the mission being to occupy the Del Marva Airport at Hebron as an advanced airdrome at 10:30 a.m., and theoretically refuel and take on bomb loads to bomb an enemy industrial center at 2:00 o'clock that same afternoon. During the period of the refueling, the christening ceremonies were conducted at the Hebron Airport.

Miss Carrie Lee Burroughs made a charming sponsor and was immediately proclaimed as honorary member of the Squadron. Captain Robert Olds, Group Operations Officer, offered the plane to the City of Salisbury, Md., and Mayor Easley accepted. Miss Burroughs allowed the foaming contents of an intriguing-looking bottle to trickle down the nose of #181, which was piloted by 2nd Lt. Russell L. Waldron, Air Reserve. Captain Olds, representing the Group Commander, made the opening address, expressing his sincere appreciation for the charming hospitality extended the Second Bombardment Group by the citizens of Salisbury.

The entire ceremony was very nicely performed, due to the efficient cooperation of the authorities of the City of Salisbury and, says the News Letter Correspondent, "we intend to take this as a model for future christenings." Following the ceremonies, Captain Olds returned direct to Langley Field, while the 49th Squadron executed various tactical formations in the vicinity of Salisbury, enroute to their proper station at Langley Field.

While the 49th Bombardment Squadron were the interested spectators during the christening of a Bomber at Salisbury, Md., members of the 20th Bombardment Squadron attended a similar event on the same day at Charleston, S.C., when one of the large Keystone Bombers of the Second Bombardment Group was christened "The City of Charleston, South Carolina."

A nine-ship formation, led by Captain R.T. Cronau, Commanding Officer of the 20th Squadron, took off from Langley Field at 7:45 a.m., August 11th, accompanied by a lone ship from Group Headquarters, which was piloted by Captain Phillips Melville, who represented Major H.A. Dargue, Commander of the Second Bombardment Group. The route was made via Pope Field, N.C., where the flight arrived at 10:15 a.m. for servicing. With this completed, the Squadron took off at 11:40 a.m., arriving at their destination at 2:00 o'clock that afternoon.

Mayor Maybank, of the City of Charleston, and his staff of officials were at the Airport to greet the Squadron. A very delightful lunch was served, at which place the Mayor and other dignitaries of the City gave welcoming speeches. Following this, Mayor Maybanks introduced Captain Melville, who acted in the capacity of the Group Commander. Captain Cronau spoke in behalf of the 20th Squadron and introduced Lieut. Wm. B. Offutt, pilot of the Keystone Bomber, which was christened "The City of Charleston, South Carolina."

With these impressive ceremonies completed, the Squadron took off for Folly Beach, a short distance from Charleston, where they theoretically bombed a convoy of ships, a tactical problem previously planned.

The contingent of the Squadron, which included 18 officers and as many enlisted mechanics, were guests overnight, and at 10:15 a.m., August 12th, took off in formation, arriving at Langley Field at 4:30 p.m.

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The 27th Pursuit Squadron, Selfridge Field, Mich., is at present engaged in high altitude formation work. This work compares the activities of pilots who have been at high altitude for some time with those of pilots who have been at low altitude for a similar time. Flights meet at a common altitude after their work at high and low altitudes and fly in the same formation. These experiments are expected to prove of considerable value in determining the actual effect of high altitude on personnel.

AERIAL GUNNERY AND BOMBING IN HAWAII

SQUADRONS from both Luke and Wheeler Fields are each putting in two weeks at the Air Corps reservation at Waimanalo, engaging in aerial gunnery and bombing. The 23rd Bombardment Squadron, commanded by Captain Raphael Baez, Jr., departed from Luke Field on August 1st. The 4th Observation Squadron, commanded by 1st Lieut. Donald D. FitzGerald, and the 50th Observation Squadron, commanded by 1st Lieut. Charles G. Brenneman, have completed their gunnery. The 72nd Bombardment Squadron will occupy the camp when the 23rd Squadron completes their gunnery, and they will be followed by the two Pursuit Squadrons and Attack Squadron from Wheeler Field.

Of interest to the ordinary observer on the ground are the different positions a plane is required to go into in order to place the hits properly. The plane is banked 180 degrees and flown back on the same side of the target. This allows the gunner only a few seconds to swing his weapon over to the other side of the plane and prepare to fire again as the plane passes the target.

Farther from the roadway, pilots may be seen dropping bombs. The Observation planes also have fixed guns pointing forward. To fire these at the target, it is necessary to aim the whole airplane and dive. The guns are fired by mechanism which is synchronized with the motor. The bullets pass through the plane of the propeller 20 degrees after the blade has gone by. Sometimes a delayed explosion in the cartridge upsets the calculations and the plane comes down for a new propeller. Most of the bombs dropped are filled with sand. Small, line fragmentation bombs are also used. The first week at camp is spent in practice, and the second in record firing and bombing.

The Attack planes carry four guns forward and one flexible gun in the rear. The forward guns are synchronized, although two of them are located in the wings and thus are not fired through the propellers. Firing is usually done from 7:00 to 10:00 a.m. After that, the mechanics take over the planes and tune them up for the following day. The armorers also work on the guns after each practice.

Areas from 1,000 up to 200 yards from the target are indicated by ground markers. The pilot is required to do his firing within this area. Usually he pulls the trigger at about 400 or 500 yards from the target. Most of the pilots put in only a short burst, as the plane cannot be kept long on a straight line.

During the past year, the Waimanalo camp has been developed from four to forty tents, a mess hall, officers' quarters, recreation hall and other facilities. The planes land on smooth, hard runways instead of weedy strips of sand dune that worried pilots a few years ago. The main runway is nearly 1,000 feet long and there is a subsidiary runway for planes using the live bombing range area. Each squadron has done a little landscape work - palms have been planted, grass plots cultivated and, in time, Waimanalo Camp will be a show place.

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EFFICIENT FUNCTIONING OF SELFRIDGE METEOROLOGICAL SECTION

The efficient functioning of the Meteorological Section at Selfridge Field, Mt. Clemens, Mich., was noted in a letter from the Chief Signal Officer at Washington, as witnessed by the following extract:

"1. The meteorological reports for June, 1932, received from Selfridge Field, have been checked at this office. No errors of consequence are noted. The checking of these forms indicates that the accuracy and neatness of the reports received from this post are of a somewhat higher standard than the average of reports received from other Army meteorological stations."

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Lieuts. R.W. Burns and Robert S. Fisher, of the 18th Pursuit Group, Wheeler Field, T.H., on a recent flight in an A-3 equipped for blind flying, landed at the auxiliary field at Haleiwa in order to change cockpits, putting Lieut. Fisher in front. Shortly after their take-off, the engine failed and they were forced to land in a rough field straight ahead. Immediately after landing, they struck a large hole which piled up the ship and it instantly burst into flames. Both officers managed to get out quickly, but they received minor burns about the face and hands. A passing motorist took them to the Waialua Hospital, and shortly afterward they returned to Wheeler Field. They are both feeling normal at this writing.

AIR CORPS OFFICER COMMENDED

CAPTAIN Ralph H. Wooten, Air Corps, Military Attache of the American Embassy, Chile, is warmly commended for performing a number of perilous flights in a humanitarian interest. In a letter addressed to the Hon. Patrick J. Hurley, Secretary of War, under date of July 27th, the American Ambassador to Chile, the Hon. W.S. Culbertson, says:

"Under the date of March 13, 1931, I wrote you a letter commending the services which Captain Ralph H. Wooten, Military Attache of this Embassy, had rendered in Chile to the science of aviation and in particular during the flight which he made (with me as passenger)from Santiago across the unexplored section of the Cordillera south of Puerto Montt and across Patagonia to Tierra del Fuego.

Prior to that flight (June 15, 1930) Captain Wooten made two flights over the Cordilleras east of Santiago searching for M. Roger Guillaumet the French flier who was lost during a flight between Santiago and Mendoza.

During this month Captain Wooten has again given evidence of his personal courage and has honored the American Army and increased the prestige of the American military attache in Santiago. On July 16th the regular trimotor aeroplane of Panagra with its crew and passengers disappeared completely in the Cordillera. Captain Wooten was requested to assist in the search and I authorized him to make such flights as seemed to him proper in order to help locate the lost plane. On July 16th he flew to Mendoza in his single motored Army plane and from there made a series of flights along the edge of the Cordillera searching for the plane. In the meantime a heavy snow storm (it being winter here) started in the Cordillera making flights over the central part of the mountain range impossible. During the following week, in spite of the bad weather conditions which made flying extremely dangerous, Captain Wooten continued his efforts practically every day, assisting in the search which covered all the sectors of the highest parts of the mountains. Unfortunately the lost plane has not yet been located.

The expressions of appreciation of Captain Wooten's services are universal and I desire to add my own words of hearty commendation and praise for the services voluntarily rendered by him. I hope that you may be able to find some way to recognize his effective services not only in connection with the flights which I have mentioned above but generally in connection with his useful services as Military Attache of this Embassy."

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FOREIGN NOTABLES VISIT WHEELER FIELD

During the month of July, Baron Jean Empain of Belgium, with his party was cruising the waters of the Hawaiian Islands in his yacht. On July 23rd, Lieut. Tourtellot, piloting a Douglas amphibian flew the Baron and one of his guests, M. Henri de la Cloche, French War Ace, around the Island of Oahu. They were accompanied by Lieut.-Colonel Gerald C. Brant, Department Air Officer. Upon landing at Wheeler Field, the party was met by Major Ernest Clark, Commanding Officer, after which the 18th Pursuit Group flew an aerial review in honor of the foreign visitors. The feminine contingent of the Baron's party arrived by motor in time to witness the review, after which all the pilots participating were introduced. A great lament arose from the bachelors when they learned that the party was leaving that same day on their yacht for the Olympic Games.

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"It has been suggested," says the News Letter Correspondent, "that the occasional announcement of commissioned personnel with their official positions be made as a matter of interest to Air Corps officers who may be due for transfer to Wheeler Field. Accordingly, the names of some of our 'key men' follow:

Commanding Officer----------	Major Ernest Clark
Adjutant----------	Captain R.H. Finley
Personnel Adjutant----------	Lieut. E.H. White
Station Operations----------	Lieut. L.S. Smith
Station Engineering----------	Lieut. G.P. Tourtellot
Commanding 6th Pursuit Squadron----------	Lieut. R.E. Fisher
Commanding 19th Pursuit Squadron----------	Lieut. R.C. Oliver
Commanding 26th Attack Squadron----------	Lieut. L.H. Rodieck

HOW THE WINDS BEHAVE AT HIGH ALTITUDES

THE meteorological section of the 18th Composite Wing, Fort Shafter, T.H., recently made some observations of the winds at very high altitudes. These observations consisted of pilot balloon soundings made at various times with special balloons that ascend 200 yards a minute. The highest altitude attained at this station was 42,300 feet, which the pilot balloon reached in 70 minutes. This ascension was made at 1:30 p.m., June 30th. Ideal conditions for such an ascension were present that day, there being but few clouds and excellent visibility.

This observation showed the usual moderate northeasterly winds for altitudes up to 9,000 feet. Above that altitude the direction of the wind gradually became southeast, south, and then southwesterly to westerly. The velocity remained moderate, around 20 miles per hour, up to an altitude of 33,000 feet, when it increased to a maximum of 50 miles per hour at 39,300 feet, from which point the velocity of the wind rapidly fell off to 14 miles per hour at 42,300 feet.

The fact that the wind velocity fell off at the highest altitude reached is unusual, because the velocities at such altitudes usually remain quite high, averaging 55 miles per hour in the summer time and 70 miles per hour in the winter. The westerly direction shown at upper altitudes is the prevailing direction of the upper winds aloft for the northern hemisphere. The temperature at the altitude reached by the balloon in this observation was approximately 70 degrees Fahrenheit below zero, and the barometric pressure was around six inches of mercury, as contrasted with a temperature of 82 degrees Fahrenheit and a pressure of 30 inches of mercury at the surface.

Another upper air observation was made April 8th. In this observation, the wind remained easterly with moderate to gentle velocities up to an altitude of 11,000 feet. From this point, the wind direction became successively southeast, south and southwest at 24,000 feet, when it remained west-southwesterly for the altitudes from 24,000 feet to 33,000 feet. The velocity from 11,000 feet gradually increased to 59 miles per hour at 30,900 feet, from which point the speed of the wind rapidly increased to an unusual velocity of 120 miles per hour at 32,700 feet. At 33,900 feet, when the balloon was lost, the velocity of the wind had dropped to 113 miles per hour. Such velocity of the wind at the altitudes reached was much higher than the average for that time of the year, which is approximately 60 miles per hour.

The westerly direction shown is customary. Observations made in the fall of the year show the direction of the wind at high altitudes to be westerly to northwesterly as contrasted with the westerly to southwesterly direction in the summer.

The high altitude observations are attracting much comment at Luke Field. The taking of such long ascensions is very seldom permissible in this section, due to the ever present clouds which obscure vision of the balloon. However, when such ascensions are made, interesting results are always secured. The pilot balloons are inflated to an approximate diameter of 26 inches with hydrogen gas until they balance a weight of 4.66 ounces, which gives the balloon an ascension rate of 200 yards a minute. These balloons are made of the very best rubber available. The inflated balloon is released and its course is followed with a theodolite. Readings of the elevation and azimuth angles of the balloon are made every minute. From these readings, the course of the balloon is plotted on a special board. The true direction and velocity of the wind are taken from the plot.

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Homestead Field, on the Island of Molokai, is to have a barracks, radio station and other facilities similar to the airplane fields at Port Allen, Kauai, and Upolu Point, Hawaii. A barracks building that will house some 40 men during inter-island expeditions and operations from an advance base will be constructed. As at the other two fields, two or three men will be left there to operate the wireless, report weather data daily and keep up the post.

A section of the field was already turned over to Federal control. The three fields are used frequently by the Army in training exercises on the other islands and are a part of preparations that will permit the Air Corps to operate from any point in the Territory in time of emergency. During the Army-Navy Maneuvers this spring, Army planes operated simultaneously from all the main islands.

INSIGNIA FOR THE 12TH OBSERVATION GROUP

Brooks Field is justifiably proud of the attractive insignia, product of the artistic ingenuity of the Commanding Officer, Major Frank D. Lackland, which has just been approved by the War Department. In the future, visitors will be impressed by the graceful artistry of the insignia, a gray goose in flight, by an attractive electrical sign that will be erected on the lawn, and also by two gray geese, which are being procured to represent the insignia, which will make their habitat on the front lawn, now being enclosed with an attractive garden fence. A fountain will be added to further beautify the enclosure.

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COLD SUMMER MONTHS FOR PURSUIT PILOTS

In accordance with yearly training schedule, tactical squadrons at Selfridge Field, Mich., are busily engaged in gunnery activity at the gunnery camp at Oscoda in Northern Michigan. The 17th Pursuit Squadron recently completed its tour and returned to Selfridge Field on August 10th. The 94th Pursuit Squadron reported at Oscoda the following day to brave the perils of sand and "Jack" Pines, and the 27th Pursuit Squadron expects to leave for the camp about September 1st.

The following extracts from a letter written by Lieut. Frederick W.Castle serve as admirable cross-section views of activity at the gunnery camp:

"The 17th Pursuit Squadron, now based at Camp Skeel, Oscoda, in Northern Michigan, desires to report satisfactory progress with gunnery practice and with beards. At present, Lieut. N.D. Sillin, Squadron Armament Officer, leads in gunnery, with a score on ground targets of 684. As for beards, Don Putt has achieved a Mongol type black beard which neatly surrounds his mouth, while French has a Gladstone-Burnside type whose reddish hues afford an attractive setting for the mottled coloring of his peeling nose.

The only drawbacks - and they are not inconsiderable - to this northern resort are that all guests are required to arise at 4:00 a.m., and the nights are so cold that bed socks have to be worn in bed. When Pursuit pilots wear bed socks it is an indication of very cold temperatures.

Outside the above mentioned drawbacks, most of those here are enjoying themselves hugely. The firing itself is plenty fun. In fact, your correspondent is of the belief that it is the best sport in the world. After flying hours, pilots are detailed to the more arduous tasks of warming the beach at Oscoda or chasing a ball on the local golf links. Sometimes they rally all their failing energy to go so far as to get up a volley ball game on the beach, with Captain Hoyt doing the organizing of the game. The Captain is a volley ball enthusiast from way back."

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AERIAL PHOTOGRAPHY IN IDAHO AND WYOMING

Turning the training of its aerial photographers to good advantage in the accomplishment of useful work for another government agency, the Air Corps is planning to photograph almost 300 square miles of country along the Snake River in Idaho and Wyoming and in the Falls River Basin in the vicinity of the Yellowstone National Park. The work is being done for the Bureau of Reclamation, Department of the Interior, at their request, and consists of the vertical photography of this area by a single-lens K-3 camera from an altitude of 10,000 feet. The photographs are required for a thorough stereoscopic study of the areas and for later use in topographic surveys of possible reservoir sites to determine their storage capacity. The 15th Photo Section, stationed at Crissy Field, Presidio of San Francisco, Calif., is preparing its Fairchild Photographic cabin monoplane for this project. An officer pilot and an enlisted photographer will do the aerial work.

Specifically, the area to be photographed extends along the Snake River from the mouth of the Hoback River to the mouth of the Grays River; then between the mouths of the Elk and Bear Creeks, and downstream from the mouth of Pine Creek for about 15 miles,- the total Snake River area to be photographed being about 55 square miles. The Falls River Basin area embraces approximately 240 square miles.

TRIANGLE PARACHUTE GIVES SATISFACTION

MITCHEL Field Parachute Department personnel are becoming more and more enthusiastic over the Triangle Parachute, now at that station for service tests, as they become acquainted with the many advantages this type 'chute has over the present standard parachute.

It is nothing unusual to see one or even two men leave planes while flying across the flying field any good flying or jumping day. But the observer's eye is held when he sees not the usual circular parachute open but a triangular 'chute, the circular type being used quite frequently on the field.

A practiced eye immediately recognizes the lighter shock load opening, the lower rate of descent, the outstanding maneuverability during descent and the lighter shock load of landing of the Triangular Parachute in comparison with the Standard 'Chute. Recently, Sergeants Pearson and Marchewka, both of the Parachute Department, made a double parachute jump while the anemometer registered a 14-mile per hour surface wind. Sergeant Pearson used a 24-ft. Triangle 'Chute, while Sergeant Marchewka used a 28-ft. Triangle 'Chute. They bailed out at approximately 2,000 feet. Their drift during descent was in the neighborhood of only 2,000 feet, which shows the desirability of a parachute which can be maneuvered to advantage during descent, especially in a moderately strong wind. Both men reported an exceptionally light landing shock as compared to that one would expect using a Standard parachute in such a strong wind.

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NO PARACHUTES IN BOLIVIA

There is at least one country in the world where parachutes are about as useful as snowshoes in the tropics. According to Lieut. A.Y. Smith, Air Corps, who recently returned from a tour of duty in Panama and who visited South America during a leave of absence, the Bolivian Air Force does not include the parachute as an item of individual equipment for its fliers.

As is well known, Bolivia is a very mountainous country. La Paz, the capital, is situated at an altitude of about 13,000 feet, and it may be said that this city, in point of altitude above sea level, is the highest in the world. The same holds true of its landing field. Due to the rarity of the atmosphere in this country, the rate of descent of a parachute is so fast that it is dangerous to life or limb. Instances are known where Bolivian fliers suffered broken legs and other severe injuries after making parachute jumps.

As may be surmised, flying in Bolivia faces many handicaps. Because of the lack of density of the atmosphere, landing fields must, of necessity, cover large areas. Landings are fast, between 60 and 80 miles an hour, depending on the type of plane used. Take-offs are difficult and require a very long run before the plane finally takes the air.

Lieut. Smith states that there are a number of very good landing fields in Bolivia, some of these being on vast plateaus at an altitude of about 12,000 feet. Bolivia uses British Vickers and some French Breguets. A number of planes are equipped with extra size wings in the endeavor to overcome the high altitude handicap.

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BOEING XP-936 POWERED WITH PRATT-WHITNEY

In the issue of the News Letter of May 28, 1932, page 206, touching on the new XP-936 Boeing Pursuit plane which Major Gerald E. Brower, Air Corps, ferried from the Boeing Plant at Seattle to Selfridge Field, Mich., it was stated that this airplane is powered with a Wright SR-1340G engine. This was an error, the proper designation for the engine being "Pratt-Whitney SR-1340-G."

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On his first visit to Rockwell Field, Calif., since he became Chief of the Army Air Corps, General Benj. D. Foulois arrived by plane on August 2nd for a 3-day stay. General Foulois, flying in an O-38, was accompanied by Major W.G. Kilner, Executive Officer to the Assistant Secretary of War; Major Ralph Royce, General Staff; Lieut.-Col. G.I. Jones, Chief Flight Surgeon, and Capt. A.B. McDaniel from the Office of the Chief of the Air Corps.

HAROLD GATTY AT WRIGHT FIELD

WRIGHT Field was the scene of an interesting event on August 1st, when Harold Gatty, round-the-world air navigator, opened the new course of the Air Corps Engineering School, by conducting a concentrated course in Celestial Navigation, same lasting a week. Mr. Gatty is at present stationed at Bolling Field, where he is engaged in the development of different methods of aerial navigation and methods of navigational instruction. He recently completed a tour of Europe during which he studied and coordinated European air navigational systems in use in different countries. He also attended the Conference of International Transoceanic Fliers held at Rome early in June.

Gatty is conceded to be one of the foremost living authorities on aerial navigation. Few flights of world importance are made without his advice and that of Captain Albert F. Hegenberger, who stands in the same category, being sought by the fliers in the planning of their routes and instruments. Gatty considers the greatest flight ever made from the point of view of navigational precision to be that of Coste and Bellonte, from Paris to New York in September, 1930. His own flight with Wiley Post, in which the two aviators circled the world in June, 1931, in 8 days, 15 hours and 51 minutes, is considered by the flying fraternity a feat possible in the given time only because of Gatty's navigational expertness. A combined speed and drift-indicator invented by himself was used constantly on this flight.

Student-officers found Gatty's lecture and demonstration classes of intense interest and value. He returned to Washington at the end of the week.

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BORDER RECONNAISSANCE MISSION AT FORT ETHAN ALLEN

The 9th Observation Group, stationed at Mitchel Field, N.Y., recently carried out a 17-plane border reconnaissance mission, using Fort Ethan Allen, Vt., as the point of rendezvous. The flight consisted of five 3-ship elements, the Fokker Transport, and the command plane, piloted by Major William Ord Ryan.

The Transport preceded the flight to Fort Ethan Allen with the new SCR 177 portable radio transmitting and receiving set now on service test at Mitchel Field. The set was put in operation prior to the arrival of the five separate units, and radio communication was successfully established with each unit on different simulated reconnaissance missions from five to thirty miles distant.

The SCR 177 was designed at the Signal Corps Laboratories at Fort Monmouth, N.J., as a replacement for the present SCR 136, and represents the latest equipment in a 50 watt transmitter. Excellent results were obtained with the SCR 177 set, and with the safe and timely arrival of all five elements at Fort Ethan Allen, the mission was considered highly successful.

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PLANE LOCATES PARTY LOST IN THE HAWAIIAN WILDS

Again the eyes of the Service were instrumental in locating personnel lost in the mountains and dense forests of the Koolau Mountains, Hawaii. On the morning of August 1st, planes were requested to make a search for seven men, reported missing from Schofield Barracks, who were on a mission of blasting new trails. Two planes from Wheeler Field immediately took off and flew over the area in an effort to locate the men and drop food to them. Two attack and two pursuit ships were paired up and sent out, one attack and one pursuit plane covering each side of the range.

The discovery of the missing men was made by Lieut. Sloan, with Lieut. Woodbury as his observer. Lieut. Craw, flying the pursuit plane in the windward Koolau team, then stood by while Lieut. Sloan went back to Wheeler Field.

Pilots flying on the leeward side of the mountains were Lieuts. J.W. Stribling and E.W. Napier in an attack plane, and Lieut. Rudolph Fink in a pursuit ship.

As soon as contact was made with the men, searching parties from Schofield Barracks were sent out in the direction given by the planes, and within one hour all seven men, four officers and three enlisted men, were being escorted back to their post, somewhat exhausted from their harrowing experience.

NUMEROUS COOPERATIVE MISSIONS WITH OTHER BRANCHES

COOPERATIVE missions with other branches of the service have accounted for 389 hours and 20 minutes of flying time by planes stationed at Luke Field, T.H., the past year. Artillery adjustment, both Coast and Field, Infantry missions, searchlight drill, radio communications and many other exercises were performed. All of these have the common purpose of uniting the air and ground forces into a combination in which every part will coordinate perfectly.

Reports of the results achieved in long range artillery adjustment have appeared previously in these columns, and it will be remembered that experiments by the long range firing board were responsible for the development of new methods and procedure along this line. During these exercises, which occupied approximately 150 hours flying, a specially equipped plane was used to adjust coast artillery fire at ranges varying from 8,000 to 40,000 yards.

The location of shots was first obtained by means of observation from the spotting plane coupled with the efforts of radio direction finders located along the shore of Oahu, which found and plotted the position of the plane in relation to the firing battery, while the plane was discovering the location of the target with relation to itself. Cooperation with the anti-aircraft and searchlights have also helped both forces. The fliers learn how to avoid "archy" fire and the searchlight beams, and the ground forces learn how to shoot accurately and how to hold a plane in the searchlight beam.

Missions with the Infantry have been equally satisfactory, and prove without doubt the value of the air force as the "eyes of the army." Close cooperation is possible here only with perfect communication and a meticulous attention to all details involved.

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EDWARD J. STEICHEN AT WRIGHT FIELD

During the first week in August, Wright Field had a notable visitor in Edward J. Steichen, of New York City, generally conceded to be America's leading photographer. Col. Steichen's visit was for the purpose of securing information for the making of an airplane mural which is to be mounted in Theatre No. 8 in the Rockefeller Center (Radio City) in New York. In securing this material, Col. Steichen's work at the field lay principally in photographing airplanes and parts of the field.

A native of Milwaukee, Col. Steichen early through natural taste drifted from amateur into professional photography. Establishing a studio in New York, he gradually became known not only for his portrait work but for his "still" photography which had been used in some of the best known advertising features in the country. For some years Vogue and Vanity Fair have held the contract for the exclusive magazine use of all of his photographic work. He is also a painter of note, having studied in Paris, and some of his pictures being in the Luxembourg Museum in Paris and the Metropolitan Museum in New York.

Col. Steichen also has an enviable war record, having been in charge of aerial photography for the U.S. Army Air Service during that period, with the consequent flying experience entailed. When the war ended, he retired with the rank of Colonel, returning to his commercial and artistic work. Hence he is very much at home at the Army post.

Although his favorite photographs are of still life, he has photographed many of the most famous people in the world. Greta Garbo, Lillian Gish, John D. Rockefeller, Gene Tunney, Bill Tilden are but a few of the notables who have come under his camera. Nor is the list confined to those of the stage and sporting fields, but includes leading diplomats, professionals and scientists.

Col. Steichen returned to New York upon completion of his work at Wright Field. He was accompanied by his assistant, Henry Flannery.

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In cooperation with the Forestry Department of the Hawaiian Sugar Planters Association, Bombing planes completed a mission of scattering a cargo of tree seeds in the Koolau Mountains on the Island of Oahu. Requests of this nature have been made on several occasions, and planes of the 18th Composite Wing made available for same.

TROOPS ARRIVE AT ROCKWELL FIELD

BEGINNING June 25th, considerable activity marked the operations at Rockwell Field, Coronado, Calif. On that date, 12 officers and 88 enlisted men reported to that station from March Field, and two days later the personnel was supplemented by the arrival of 15 enlisted men from the First Balloon Company, Post Field, Fort Sill, Okla. On June 25th, in compliance with War Department orders, the 19th Bombardment Group Headquarters, 30th Bombardment Squadron and the 32nd Bombardment Squadron were given active status with station at Rockwell Field. On that date also, the 76th Service Squadron, which was stationed at this field since it was placed on active status in November, 1930, was transferred from the 20th Pursuit Group to the 19th Bombardment Group. The new units were organized on a skeleton basis from the incoming personnel from March and Post Fields and by transfer of approximately 50 men from the 76th Squadron to the new units. The 72nd and the 23rd Bombardment Squadrons, both active units of the 19th Group, are to continue their station in the Hawaiian Department, attached to the 5th Composite Group.

The Group Staff is as follows: Group Commander, Capt. H.M. McClelland; Group Adjutant, 1st Lieut. Guy Kirksey; Group Operations, 1st Lieut. W.T.Larson; Group Supply, Capt. H.B. Chandler; Group Engineering, 1st Lieut. D.H. Dunton; Group Personnel Adjutant, 2nd Lieut. W.W. Gross.

The Staff of the 30th Bombardment Squadron is as follows: Squadron Commander: Capt. J.L. Grisham; Adjutant, 2nd Lieut. T.B. Anderson; Operations, 2nd Lt. Gerald Hoyle; Engineering, 2nd Lieut. J.W. Brown; Supply Officer, 2nd Lieut. C.W. Haas. The First Sergeant of the 30th is Edward Smith, recently transferred to Rockwell Field from Randolph Field. Line Chief of the Squadron is Master Sergeant Andrew May.

The Staff of the 32nd Bombardment Squadron is as follows: Squadron Commander: Captain H.N. Heisen; Squadron Operations and Engineering, Capt. C.W. Pyle; Asst. Squadron Operations and Engineering, 2nd Lieut. H.G. Bunker; Adjutant, 2nd Lieut. R.W. Goetz; Supply, 2nd Lieut. R.W. Goetz; Acting First Sergeant, Staff Sgt. Jack Kerr; Line Chief, Master Sergeant T.W. Richards.

The Staff of the 76th Service Squadron consists of Capt. R.K. LeBrou, Squadron Commander; 1st Lieut. C.E. Archer, Adjutant, also Operations and Engineering; 2nd Lieut. J.F. Walsh is Squadron Supply Officer. The First Sergeant is F.J. Birk and Line Chief, Tech. Sgt. Charles Loefler.

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RESERVE OFFICER TRAINING AT MITCHEL FIELD

Air Corps Reserve pilots of the Second Corps Area just completed a successful tour of active duty at Mitchel Field. Forty pilots received active duty training during the two periods of instruction. The 861st Observation Squadron, with 21 pilots, was in camp from July 10th to 23rd, and the 303rd Observation Squadron, with 19 pilots, from July 24th to August 6th. The training was under the supervision of Lieut. C.J. Kenney, Air Corps, with planes and equipment of the 1st Observation Squadron.

The schedule for air work included a check ride, Gunnery, Photography, Avigation and Cross-Country. Each pilot averaged 13 hours in the air for his two weeks' training. The avigation and cross-country were incorporated in flights to Albany, Boston, Camp Dix and Atlantic City.

With every ship intact, without even so much as a scratch on any, the officers should be proud of the record made. Mitchel Field was glad to have these officers with them again, even if for only the two weeks' period.

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BOMBERS AID RESERVE TRAINING AT PEARSON FIELD

A flight, consisting of one B-2 and one B-4A Bombers left March Field, Calif., July 22nd, for Pearson Field, Washington, for the purpose of aiding in the training of the 489th Bombardment Squadron (Reserve) at Vancouver. The pilots were 1st Lieut. P.E. Burrows, 2nd Lieuts. John S. Mills, M.L. Harding, Air Corps, and Fred N. Ward, Air Reserve. As an inaugural event commencing the second week of training, the B-4A, piloted by Lieut. Ward, found a soft spot in the Department of Commerce field at Troutdale, Oregon, 22 miles east of Pearson Field, and turned upside down. The plane was so severely damaged that it required a major overhaul, but there was no injury to personnel.

A NEW CROSS-COUNTRY KIT

AVE you ever seen a pilot leaving any post operations about to start on a cross-country? Envelope under his elbow, trying to balance the first aid kit and smoke candles on one arm, helmet on his head with his goggles gingerly dancing in his eyes and, perhaps, his clearance protruding from between his teeth?

"Well, gone forever are such days, especially if you are lucky enough to be stationed at Mitchel Field, N.Y., and luckier to have a cross-country," says the News Letter Correspondent.

A new idea consisting of a handy kit made to contain all cross-country necessities was originated in Captain Pursley's office in Post Operations through the combined efforts of Captain Pursley and Lieut. Bawsel. The Parachute Department under Tech. Sergeant Pearson has just finished the first ten of these kits. They are made out of khaki-colored waterproof duck, with a web carrying strap securely sewn across the top. The inside dimensions are 9" x 12" x 2½", which snugly accommodates the cross-country envelope, three smoke candles, and the new Aeronautical First Aid Kit recently received at Mitchel Field. A generous flap protects the contents from the elements and is held down by two Lift-the-Dot fasteners. On the reverse side one finds an open pocket sufficiently large to receive all the necessary maps for the flight. Stenciled identification states the office and station of origin on each kit.

It is rumored that an additional compartment will be added to the original kit in the near future and will contain ample space for such flight indispensables as ear-cotton, chewing gum, and a year-old issue of "True Detective Stories" for the back seat boys.

The Operations Officer at Mitchel Field will gladly give out all information concerning these kits to any and all interested parties.

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MARCH FIELD ENTERS OLYMPICS

March Field was active recently in Olympic Games activities - not as contestants but as interested co-workers. A mosaic map of certain areas in the vicinity of Los Angeles was prepared by the 23rd Photo Section to assist officials in laying out routes for marathon runs, equestrian events, and automobile traffic.

Together with 200 Navy and Marine airplanes, the First Bombardment Wing, March Field, participated in a mass flight over North Island in honor of the N.E.A. and foreign journalists on July 28th. This flight was the greatest peacetime air spectacle ever held on the Pacific Coast. On the following day the Wing flew over the new State Building in Los Angeles during the dedication ceremonies. Vice President Curtis and numerous governors and other celebrities assisted in the program. Following this review, the Wing proceeded to the Los Angeles Municipal Airport where it put on fifteen minutes of tactical formation in honor of Olympic participants and officials, and landed for an inspection by the distinguished guests. The March Field band aided in the program by a series of selections before and after the review. A professional radio announcer, assisted by an Army officer, explained the maneuvers to the visitors over a loud speaker system. It was estimated that a million people saw the Wing in action during the two days.

On the Los Angeles flight, the Wing had as its guest of honor Major-General Benjamin D. Foulois and his staff, who arrived at March Field the day before on an inspection trip. General Foulois attended the opening of the Olympic Games before returning to the East Coast.

MISS EARHART GUEST OF MARCH FIELD

Amelia Earhart Putnam, famous Trans-Atlantic flyer, was the guest of the Commanding Officer, March Field, Riverside, Calif., on August 6th, at which time the First Bombardment Wing staged a review in her honor. Mrs. Putnam was accompanied by her son. Following the review, the two visitors were the guests of Lieut.-Col. and Mrs. Arnold at luncheon. Early in the afternoon they returned to Los Angeles to attend the Olympic Games.

A PRETTY TWO-POINT LANDING

FLYING three hundred miles with the broken right wheel of his plane suspended in mid air under the left wheel, reaching his station, and successfully landing his plane without further damage thereto or injury to himself was the distinctive experience of 2nd Lieut. James E. Darby, Air Reserve, 12th Observation Group, Brooks Field, Texas, on July 30th.

Lieut. Darby had accomplished a cross-country mission to Graham, Texas, near Dallas, and was leaving the Graham airdrome for the return to Brooks Field, when the landing gear of his O-19 plane struck a slight embankment, with the result that the right wheel was torn from the plane, and swung in mid air underneath the left wheel.

Noting his plight, Lieut. Darby hastily scribbled a note and threw it down to airdrome personnel who immediately informed Brooks Field by phone. When the pilot arrived at Brooks Field he was met by two planes. On fuselages in box lettering, he read: "Either jump or land, at your discretion." Lieut. Darby elected to land, whereupon he accomplished, in the vernacular of the crew breathlessly watching, "one of the prettiest two-point landings ever accomplished at Brooks Field," - on the belly tank and tail wheel of his plane.

The young officer was highly commended by the Commanding Officer of Brooks Field, Major Frank D. Lackland, and by his fellow officers for his unusual feat, especially noteworthy, since Lieut. Darby is but a recent graduate of the Air Corps Advanced Flying School, and the sum total of his experience in flying covers a period of less than a year since his orders to active duty at Brooks Field.

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RESERVE FLYERS "DO THEIR STUFF" DURING OPENING OF WATERWAY

When the Hon. Patrick J. Hurley, Secretary of War, officially opened the Kansas City-St. Louis waterway on the Missouri River recently, he did so to the tune of roaring D-12's and Wasps, ships of the 430th Pursuit Squadron, led by Captain William B. Wright. The waterway being a revival of transportation methods of 75 years ago, the two forms of transportation must have afforded a unique contrast to the members of the party aboard the boat.

The squadron put on two performances, one group going up the river at nine o'clock in the morning and another at three in the afternoon. They consisted of one 3-ship formation of O-1E's and another of one O-38 and two O-1E's. The flying drew a commendation from the Secretary. The pilots were Captain W.S. Green, Lieuts. A.L. Darby, J.N. Going, B.A. Sweeney, T.S. Poquette, A.G. Hunter, C.D. Daily, W.M. Campbell, W.R. Alemang, R.C.Farrell and Captain W.B. Wright. All are Reserve pilots except Captain Wright, Army Air Corps, and Commander.

The News Letter Correspondent from Richards Field, Kansas City, Mo., forwarded a photostat copy of a letter of July 23rd which the Secretary of War addressed to Captain Wright. Appended thereto was a slip reading: "Ye Editor:- With no apologies to Boston Reserves." The Secretary's letter reads as follows:

"Dear Captain:

I congratulate you and the officers who served with you in the flying escort that preceded the Mark Twain, on board of which I entered the Port of Kansas City on my recent inspection of the Missouri River.

I deeply appreciated the courtesies shown me by your organization and I commend you and the members of the organization on the splendid ability shown by the fliers throughout the maneuvers.

With kind personal regards and best wishes, I am

Sincerely yours,

(s) Patrick J. Hurley."

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The March Field Band became inactive as of July 14, 1932. The personnel thereof were attached to other organizations on the field, but have continued to operate as a volunteer organization. Warrant Officer Eto Innocenzy, Band Leader, was assigned to duty as Leader of the 14th Coast Artillery Band at Fort Worden, Washington.

DEATH OF DISTINGUISHED WAR TIME OFFICER

THE death on August 9th, while on a brief vacation in Paris, France, of Brigadier-General Clinton Goodloe Edgar, Officers Reserve Corps, Detroit financier, with extensive beet sugar interests in Europe, brings to mind the brilliant services rendered by him during the World War. In recognition of these services he was awarded the Distinguished Service Medal. He was also decorated by the Italian Government, being made a Commander of the Order of the Crown of Italy by order of King Victor Emmanuel.

Possessing remarkable ability as an executive and as an organizer, General Edgar performed one of the big constructive pieces of work of the War. He was chiefly responsible for planning the flying fields, depots and warehouses, and the construction of buildings in connection with each. In addition to this, he had the important responsibility of shipping aeronautical supplies to embarkation ports for destinations overseas. Despite many obstacles, he was able to give this country in a time of great stress a remarkable chain of flying fields, which were not only well built for all intents and purposes, but were ready on time. The projects under his charge involved the expenditure of millions of dollars and were most satisfactorily handled under his immediate supervision.

General Edgar was born December 21, 1873, at Detroit, Mich. He graduated from the Michigan Military Academy, and then attended Cornell University, Ithaca, New York, from which he graduated in 1897.

Holding a commission as Captain in the Quartermaster Corps Reserve at the outbreak of the War, but realizing that he could render more valuable services in the Aviation Section, Signal Corps, he resigned his commission to accept a Captaincy in the Signal Corps Reserve, June 11, 1917. From that time until he was honorably discharged from the military service, at his urgent request, on February 5, 1919, he was Officer in Charge of the Construction Division, Signal Corps, until January 6, 1918, and Chief of the Supply Section, Office of the Director of Military Aeronautics, until his military services terminated. He was promoted to Lieutenant-Colonel, September 5, 1917, and to Colonel on December 6, 1917.

In recognition of his services, President Harding nominated him for promotion to the rank of Brigadier-General, and the nomination was confirmed by the Senate, July 26, 1922.

General Edgar was managing partner of W.H. Edgar & Son, and president of the Edgar Sugar House. During his business career he was president of the Continental Sugar Company and a director of the Wabash Railroad.

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MIXING ETHYL FLUID

The following appeared in a recent issue of the Navy News Letter:

"As some types of engines require a higher content than others of ethyl fluid, it is necessary for these engines to change the proportion of mixture as ordinarily carried in the main storage tanks. The Naval Air Station, San Diego, California, reports an interesting experiment as follows:

'Lack of sufficient gas tanks, containers, and storage facilities to handle the various ethyl content gasolines required, not considering the difficulty of proper mixing, creates an additional problem. This results, in many instances, in operating the engines with ethyl fluid in excess of requirements. An experiment was recently made to determine if ethyl fluid could be properly mixed by adding it to the tank of an airplane. Twenty-five gallons of straight gasoline were placed in the tank of an F4B-1 airplane, 150 c.c.'s of ethyl were then poured into the tank, followed by the addition of twenty-five more gallons of straight gasoline. The plane was then taxied about a quarter of a mile. Gasoline samples were then taken both from the top and the bottom of the tank and analyzed for ethyl content by a civilian chemist at Rockwell Field with results as follows:

The sample from the top of the tank contained 1.66 c.c. of tetra ethyl lead per gallon. The sample from the bottom of the tank contained 3.27 c.c. of tetra ethyl lead per gallon.'"

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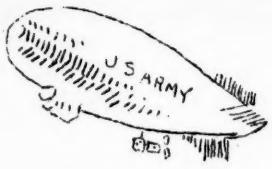
Captain Albert W. Stevens, premier photographer of the Army Air Corps, will make a photographic flight for the purpose of making an accurate film record of the coming eclipse of the sun in New England. The National Geographic Society is bearing all the expenses incident to this scientific venture.

ARMY'S BIGGEST BLIMP NEARS COMPLETION



The largest non-rigid airship in the United States, now under construction by the Goodyear-Zeppelin Corporation of Akron, Ohio, and to be used by the Army Air Corps for coastal patrol work, is expected to be completed and ready for trial flights by October 15th next.

This airship, known as the TC-13, will have an overall length of 233 feet, a diameter of 54 feet, and a height, including the airship car carried underneath, of 69 feet. It will have a gas capacity of 360,000 cubic feet, with a gross lift of 22,300 pounds. Its lifting power will be non-inflammable helium gas, and it is designed to carry from 900 to 1300 gallons of fuel, depending on the length of the cruise. Its cruising range will vary according to the rate of speed it will travel. For instance, it will cover a total of 1,000 miles at a speed of 65 miles per hour, 1800 miles at 50 miles per hour, and it can remain in the air about 100 hours at a speed of 25 miles per hour. A noteworthy feature of this big airship will be its ability to pick up fuel during flight.

At present the largest airships operated by the Army are approximately 200 feet long, with a gas capacity of 200,000 cubic feet.

The airship car in the TC-13 is to be internally suspended flush with the envelope, its supporting cables dropping from the top of the inside of the gas compartment of the envelope. Two air balloonets will be installed in the envelope for trim and expansion. The present type airships have the car suspended below the bag with cables supporting it attached to the exterior of the envelope. On each side of the car at the center will be installed two engines of 375 horsepower, each of which will be geared at a ratio of three to two for three-bladed propellers, the motors turning three times to two turns of the propeller, thus reducing the speed of the propellers and causing less noise.

The car will be of welded tubular construction, enclosed, and the covering will be corrugated metal and fabric. There will be space for three pilots, two mechanics, a navigator, radio operator, and bomber, with sleeping accommodations, toilet facilities for the crew, a compartment for bombs, a sub-cloud car, and an extra-strong radio set with a range of 3,000 miles. The tanks for fuel, water, and storage will be overhead. These tanks, in the event of trouble, can be dropped by the pilot at his discretion, thus providing greater buoyancy.

The sub-cloud car, originally designed in this country by the Air Corps, is an improved model of the first car, its advantage lying in the fact that the ship may hide above the clouds, while an observer in the car below the clouds can observe actions on the ground and report by telephone to the ship. A single cable will support the sub-cloud car about 1,000 feet below the ship.

A distinctive feature of this new airship is five control surfaces instead of four as in present types. These stabilizing surfaces will be in the rear of the ship - one atop the envelope, an elevator on either side and two rudders on the bottom.

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WAR DEPARTMENT ORDERS AFFECTING AIR CORPS OFFICERS

CHANGES OF STATION: To Langley Field, Va.: Captain Paul J. Mathis from Office Chief of the Air Corps; 2nd Lt. Dwight B. Schannep from Panama.

To Kelly Field, Texas: 2nd Lieuts. John J. O'Hara, Jr., and Fredric H. Smith, Jr., from Panama.

To Bolling Field, D.C.: 2nd Lieut. George P. Moody from Panama.

To Barksdale Field, La.: 1st Lieut. Jack Greer from Philippines.

To Mitchel Field, N.Y.: 1st Lieut. Otto Wienecke from Philippines.

Orders transferring 2nd Lieut. Kenneth C. Brown from Crissy Field to Chanute Field revoked.

DETAILED TO AIR CORPS: Captain Harold J. Adams, Signal Corps, and to Randolph Field, Texas, not later than October 15th for primary flying training.

RETIREMENT: 2nd Lieut. Henry A. Winters to proceed to his home to await retirement.

PROMOTIONS: 1st Lieut. Fred E. Woodward to Captain, rank August 8, 1932; 2d Lieut. Thurston H. Baxter to 1st Lieutenant, rank August 7, 1932.

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Send in your contributions to the News Letter on the 1st and 15th of the month.

"HOW DOTH THE LITTLE BUSY BEE, ETC."

And now a reproduction of the little busy bee appears on the fuselage of airplanes of the 58th Service Squadron, it being the first time an insect has been ushered into the insignia menagerie of Air Corps squadrons. Service squadrons in particular have a penchant for adopting animals or birds for the distinctive markings of their airplanes. For instance, the 56th Service Squadron has a hawk with a broken wing; the 59th is represented by a beaver; the 61st by a Long Island duck; the 62nd by a goat's head; the 63rd by a monkey holding a propeller and the 64th by an African elephant carrying timber. The 58th Service Squadron, claiming that it is a very busy organization, has very appropriately adopted the bee as its insignia.

A letter of recent date from The Adjutant General, with respect to the insignia of the 58th Service Squadron, reads as follows:

"1. The following insignia hereinafter described for the marking of airplanes of the 58th Service Squadron, Air Corps, is approved:

On a blue hexagon, long axis horizontal, bordered in gold a bee volant proper.

The 3rd Air Park, a World War unit, was organized February 6, 1918, at Camp Waco, Texas, as the 255th Aero (Service) Squadron. It served overseas from June 13, 1918, to June 27, 1919, participating in the following operations:

Defensive Sector (Lorraine)	July 27-Sept. 11, 1918.
St. Mihiel	Sept. 12-Sept. 16, 1918.
Defensive Sector (Lorraine)	Sept. 17-Sept. 25, 1918.
Meuse-Argonne	Sept. 26-Nov. 11, 1918.

In August, 1918, the designation of the unit was changed to 3rd Park Company; on October 19, 1918, it was redesignated 3rd Air Park. The 3rd Air Park was demobilized at Hazelhurst Field, Long Island, N.Y., July 14, 1919.

The 58th Service Squadron was organized at Langley Field, Va., October 1, 1921, as Air Park No. 3. January 16, 1923, it was redesignated 58th Service Squadron. April 8, 1924, the 3rd Air Park of the World War was reconstituted and consolidated with the 58th Service Squadron. October 31, 1929, the 58th Service Squadron was made inactive; October 1, 1930, again made active at Brooks Field, Texas.

Under the provisions of paragraph 12b, A.R. 260-10, the 58th Service Squadron is entitled to silver bands for its guidon engraved:

Lorraine
St. Mihiel
Meuse-Argonne.

The background and border are in the colors of the Air Corps, and the bee volant is the well recognized symbol of the worker, the bee not being an offensive fighter but having a defensive weapon when annoyed. The hexagonal background suggests the many sided activities of a service squadron."

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One of the new additions to Headquarters 18th Composite Wing, Fort Shafter, T.H., is a direct telegraph line with Luke and Wheeler Fields, which was installed recently. This will greatly expedite the handling of messages between these points at all times. In the event of tactical missions of the combined Wing, direct communication will greatly increase the efficiency of the personnel operating and also expedite the movement of aircraft.

The News Letter is indebted to Mr. Everett Heinrich, staff artist for Aviation Engineering, New York City, for the cover design for this issue. It is gratifying to note the interest taken in the News Letter even by those outside of the service. So far there have been enough designs for covers on hand to fill our needs. Right now, however, there is a depression in cover designs. We hope those artistically inclined will take note and cooperate to end this depression in short order.